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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,750	08/04/2003	Hidenori Iimi	4041J-000750	5351

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EXAMINER	
ALHIJA, SAIF A	

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/633,750	IIMI ET AL.	
	Examiner	Art Unit	
	Saif A. Alhija	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/4/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-19 have been presented for examination.

PRIORITY

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 4 August 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the Examiner has considered the IDS as to the merits.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

MPEP 2106 recites:

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result" State Street 149 F.3d at 1373, 47 USPQ2d at 1601-02. A process that consists solely of the manipulation of an abstract idea is not concrete or tangibles. See In re Warmerdam, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed.Cir. 1994). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459.

4. **Claims 1-19 are rejected** under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

i) Claims 1-19 are directed to a device, method, and computer program product for analysis, computing, converting, and quantifying data. The steps as recited appear to be a mere manipulation of

data and as such the claims do not produce a "useful, concrete and tangible result" therefore the claims are non-statutory.

ii) Claim 19 recites a computer program product. It should be noted that code (i.e., a computer software program) does not do anything per se. Instead, it is the code stored on a computer that, *when executed*, instructs the computer to perform various functions. The following claim is a generic example of a proper computer program product claim;

A computer program product embodied on a computer-readable medium and comprising code that, when executed, causes a computer to perform the following:

Function A
Function B
Function C, etc...

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Ebisu et al.** "**Method and Apparatus for Continuous Casting", U.S. Patent No. 6,241,004,** hereafter referred to as **Ebisu.**

Regarding Claim 1:

Ebisu discloses A design-aiding device for a casting product, comprising:

analyzing means for analyzing solidification process based on temperature change of a melted material of the casting product in elapse of time in a three-dimensional model that corresponds to the casting product and is formed of a plurality of cells; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

computing means for computing cell shrinkage porosity occurrence rates of the cells in the three-dimensional model from a result by the analyzing means; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

converting means for stratifying the cell shrinkage porosity occurrence rates computed by the computing means and for converting the cell shrinkage porosity occurrence rates to specific gravity values; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

and quantifying means for quantifying a region shrinkage porosity occurrence rate of a region that is to be evaluated regarding the region shrinkage porosity occurrence rate, by computing a volume with respect to each of the specific gravity values converted by the converting means, multiplying the computed volume by each of the specific gravity values to obtain a product, and then summing up, to obtain a sum, all the products corresponding to all the specific gravity values included in the region. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 2:

Ebisu discloses The design-aiding device for a casting product according to claim 1, wherein the computing means computes the cell shrinkage porosity occurrence rates with an equation where a temperature gradient of the melted material is divided by a square root of a cooling rate of the melted material. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-**

63. Figures 11, 18, and 43. Table 1-3, and 7)

Regarding Claim 3:

Ebisu discloses The design-aiding device for a casting product according to claim 2, wherein the equation includes, as an initial condition, a supply-stopping temperature at which supply of the melted material is stopped, and wherein the supply-stopping temperature is set based on a kind of the melted material. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 4:

Ebisu discloses The design-aiding device for a casting product according to claim 1, further comprising: strata setting means for setting a number of strata of the cell shrinkage porosity occurrence rates, wherein the converting means stratifies the cell shrinkage porosity occurrence rates into the strata. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 5:

Ebisu discloses The design-aiding device for a casting product according to claim 1, wherein the quantifying means quantifies the region shrinkage porosity occurrence rate as a region specific gravity value by dividing the sum by a volume of the region. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 6:

Ebisu discloses The design-aiding device for a casting product according to claim 1, wherein the region that is to be evaluated regarding the region shrinkage porosity occurrence rate is one of a plurality of regions into which the three-dimensional model is divided. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 7:

Ebisu discloses The design-aiding device for a casting product according to claim 5, further comprising:

critical value setting means for setting a critical specific gravity value; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

and determining means for determining whether the region specific gravity value is not greater than the critical specific gravity value set by the critical value setting means, and advising changing design when the region specific gravity value is determined to be not greater than the critical specific gravity value. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 8:

Ebisu discloses The design-aiding device for a casting product according to claim 7, wherein the critical value setting means sets the critical specific gravity value with respect to each of regions into which the three-dimensional model is divided. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 9:

Ebisu discloses The design-aiding device for a casting product according to claim 1, wherein the casting product includes a die-casting product using an alumina alloy. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 10:

Ebisu discloses A design-aiding method for a casting product, comprising:

analyzing solidification process based on temperature change of a melted material of the casting product in elapse of time in a three-dimensional model that corresponds to the casting product and is formed of a plurality of cells; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

computing cell shrinkage porosity occurrence rates of the cells in the three-dimensional model from an analyzed result; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

converting the cell shrinkage porosity occurrence rates to specific gravity values after stratifying the cell shrinkage porosity occurrence rates; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

and quantifying a region shrinkage porosity occurrence rate of a region that is to be evaluated regarding the region shrinkage porosity occurrence rate, by computing a volume with respect to each of the specific gravity values, multiplying the computed volume by each of the specific gravity values to obtain a product, and then summing up, to obtain a sum, all the products corresponding to all the specific gravity values included in the region. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 11:

Ebisu discloses The design-aiding method for a casting product according to claim 10, wherein the cell shrinkage porosity occurrence rates of the cells are computed with an equation where a temperature gradient of the melted material is divided by a square root of a cooling rate of the melted material. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 12:

Ebisu discloses The design-aiding method for a casting product according to claim 11, wherein the equation includes, as an initial condition, a supply-stopping temperature at which supply of the melted material is stopped, and wherein the supply-stopping temperature is set based on a kind of the melted material. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 13:

Ebisu discloses The design-aiding method for a casting product according to claim 10, further comprising: setting a number of strata of the cell shrinkage porosity occurrence rates, wherein the cell shrinkage porosity occurrence rates are stratified into the number of strata when the cell shrinkage porosity occurrence rates are stratified. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 14:

Ebisu discloses The design-aiding method for a casting product according to claim 10, wherein the region shrinkage porosity occurrence rate is quantified as a region specific gravity value by dividing the sum by a volume of the region. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line**

32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)

Regarding Claim 15:

Ebisu discloses The design-aiding method for a casting product according to claim 10, wherein the region that is to be evaluated regarding the region shrinkage porosity occurrence rate is one of a plurality of regions into which the three-dimensional model is divided. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 16:

Ebisu discloses The design-aiding method for a casting product according to claim 14, further comprising:

setting a critical specific gravity value; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

and determining whether the region specific gravity value is not greater than the critical specific gravity value, and advising changing design when the region specific gravity value is determined to be not greater than the critical specific gravity value. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 17:

Ebisu discloses The design-aiding method for a casting product according to claim 16, wherein the critical specific gravity value is set with respect to each of regions into which the three-dimensional model is divided. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 18:

Ebisu discloses The design-aiding method for a casting product according to claim 10, wherein the casting product includes a die-casting product using an alumina alloy. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Regarding Claim 19:

Ebisu discloses A computer program product for executing design-aiding for a casting product, comprising:

analyzing solidification process based on temperature change of a melted material of the casting product in elapse of time in a three-dimensional model that corresponds to the casting product and is formed of a plurality of cells; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

computing cell shrinkage porosity occurrence rates of the cells in the three-dimensional model from an analyzed result; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

converting the cell shrinkage porosity occurrence rates to specific gravity values after stratifying the cell shrinkage porosity occurrence rates; **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

and quantifying a region shrinkage porosity occurrence rate of a region that is to be evaluated regarding the region shrinkage porosity occurrence rate, by computing a volume with respect to each of the specific gravity values, multiplying the computed volume by each of the specific gravity values to obtain a product, and then summing up, to obtain a sum, all the products corresponding to all the specific

gravity values included in the region. **(Column 1, Lines 10-30. Column 14, Line 54 – Column 16, Line 32. Column 20, Lines 12-63. Figures 11, 18, and 43. Table 1-3, and 7)**

Conclusion

6. All Claims are rejected.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saif A. Alhija whose telephone number is (571) 272-8635. The examiner can normally be reached on M-F, 11:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAA

August 15, 2006

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